

Claims

1. Water-in-oil micro-emulsion, with binary phase differentiability and active substance differentiability, characterized in that it is free of cross-linking agents and comprises
 - a) 45 to 90 wt.-% of a liquid oil phase;
 - b) 5 to 40 wt.-% of a mixture of one or more W/O and one or more O/W surfactants, in a ratio of 1:4 to 1:1.2;
 - c) 0.01 to 20 wt.-% of one or more emulsifiers;
 - d) 0.00 to 15 wt.-% of one or more monovalent or bivalent C₁₋₈ alcohols;
 - e) 1 to 10 wt.-% water or aqueous solutions,whereby the micelles of this primary micro-emulsion have a particle size of 20 to 400 nm, and the emulsion can be optionally converted to a secondary W/O micro-emulsion or an O/W micro-emulsion, by means of reaction with an aqueous phase.
2. Water-in-oil micro-emulsion as recited in claim 1, characterized in that it contains 0 to 30 wt.-% of one or more active substances soluble in water or soluble in fat, or mixtures of active substances soluble in water and soluble in fat.

3. Water-in-oil micro-emulsion as recited in one of claims 1 to 2, characterized in that in addition, 0 to 15 wt.-% additives are present.
4. Water-in-oil micro-emulsion as recited in claim 1 to 3, characterized in that it contains
 - a) 50 to 80 wt.-% of an oil phase;
 - b) 5 to 40 wt.-% of a mixture of one or more W/O and one or more O/W surfactants;
 - c) 0.1 to 10 wt.-% of one or more lecithins, phosphatidylcholines, or derivatives or mixtures thereof as an emulsifier;
 - d) 0.0 to 10 wt.-% of one or more monovalent or bivalent C₁₋₈ alcohols;
 - e) 1 to 10 wt.-% water or aqueous solutions.
5. Water-in-oil micro-emulsion as recited in one of claims 1 to 4, characterized in that it contains 0.01 to 15 wt.-% alcohol.
6. Water-in-oil micro-emulsion as recited in one of claims 1 to 5, characterized in that the W/O surfactant(s) is/are non-ionic and have an HLB value of 3 to 7, and that the O/W

surfactant(s) is/are non-ionic and have an HLB value of 9 to 18.

7. Water-in-oil micro-emulsion as recited in one of claims 1 to 6, characterized in that the lecithin, phosphatidyl choline or derivative thereof is selected from among phosphatidyl choline, soy lecithin, egg lecithin, mixtures of phosphatidyl choline and lecithin in various proportions, or mixtures thereof.
8. Water-in-oil micro-emulsion as recited in one of claims 1 to 7, characterized in that the alcohol is selected from among ethanol, isopropanol, butanol, 1,6-octane diol, 1,2-hexane diol.
9. Water-in-oil micro-emulsion as recited in one of claims 1 to 8, characterized in that it contains water-soluble active substances, which are selected from among amino acids, peptides, protein hydrolysates, proteins, saccharides, oligosaccharides, polysaccharides and derivatives, hormones and substances similar to hormones, antioxidants, vitamins and pro-vitamins, AHA acids, NMF, oxidants, plant extracts, flavonoids, and plant polyphenols or mixtures thereof.

10. Water-in-oil micro-emulsion as recited in one of claims 1 to 9, characterized in that it contains fat-soluble active ingredients that are selected from among antioxidants, vitamins and pro-vitamins, unsaturated fatty acids, ceramides, ether oils or mixtures thereof.
11. Water-in-oil micro-emulsion as recited in one of claims 1 to 10, characterized in that it dermatologically effective agents, selected from among hormones and substances similar to hormones, antimycotics, scar treatment agents, tanning agents, tars, keratinolytics, keratinoplastics, photocumarins, acelainic acid or mixtures thereof.
12. Water-in-oil micro-emulsion as recited in one of claims 1 to 11 characterized in that electrolytes, oxidants, chelating substances, diffusion reinforcing agents, penetration promoting agents, moisturizers or mixtures thereof are contained as additives.
13. Water-in-oil micro-emulsion as recited in one of claims 1 to 12 characterized in that it contains biological oxygen carriers, selected from among native, modified, or non-

modified hemoglobin, myoglobin, or mixtures thereof, in a total amount of 0.001 to 20 wt.-%.

14. Water-in-oil micro-emulsion as recited in claim 13, characterized in that it furthermore contains antioxidants, glutathione, super-oxide dismutase, melatonin, flavonoids, amino acids or mixtures thereof.
15. Water-in-oil micro-emulsion as recited in one of claims 13 or 14, characterized in that it furthermore contains glucose.
16. Water-in-oil micro-emulsion as recited in one of claims 1 to 15, characterized in that it additionally contains vitamins and pro-vitamins in an amount of 0.01 to 1.0 wt.-%.
17. Water-in-oil micro-emulsion as recited in one of claims 1 to 16, characterized in that it contains plant extracts in an amount of 0.1 wt.-% to 5 wt.-%, 0.1 wt.-% to 5 wt.-% ether oils, 0.1 wt.-% to 10 wt.-% AHA acids, 0.01 to 0.3 wt.-% hormones or substances similar to hormones, 0.1 to 5 wt.-% essential fatty acids, ceramides, or mixtures thereof.

18. Topically applicable preparation in the form of a micro-emulsion, characterized in that it represents a composition as recited in one of claims 1 to 17, or a mixture thereof with 0.1 to 90 wt.-% of an aqueous phase, whereby the preparation then contains 1 to 50 wt.-% of the oil phase and a W/O micro-emulsion or an O/W micro-emulsion.
19. Method for the production of a micro-emulsion as recited in one of claims 1 to 18, characterized in that the oil phase, if applicable with fat-soluble active substances contained in it, containing the surfactant(s), the emulsifier(s), as well as the alcohol(s) and, if applicable, additives, and an aqueous phase, and, if applicable, the water-soluble active substance(s), if applicable additives, are mixed with one another at temperatures from 10 to 30°C, and the primary W/O micro-emulsion obtained in this manner is converted to a secondary W/O micro-emulsion or a secondary O/W micro-emulsion, if necessary with an aqueous phase that can contain additional water-soluble active substances, if applicable, and additives, if applicable.
20. Use of a micro-emulsion as recited in one of claims 1 to 18 as or for the production of a cosmetic, dermatological,

pharmaceutical preparation for the topical treatment of skin that has been irritated or damaged or has degenerated due to allergy, bacteria, immunology, external influences, or for the treatment and care of hair.

21. Use as recited in claim 20, characterized in that skin that has been irritated or changed due to age is treated.
22. Use as recited in claim 21, characterized in that a preparation as recited in claim 2, 13 to 15 is used.
23. Use as recited in one of claims 20 to 22, characterized in that the emulsion is liquid and is sprayed on or applied as a gel.